

# **DMH 11- Serious concerns and objections from a consumer perspective**

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# DMH 11 claim

- “Increase in the yield will improve income of farming communities”
- “Will reduce country’s dependence on import of edible oil”

On the former, please do ask farmers if producing more results in greater incomes for farmers!!

# Risk Assessment...

- Risk Assessment frameworks need to assess both BENEFITS and RISKS realistically with equal rigour
- In the case of GM mustard DMH-11, what BENEFIT ASSESSMENT WAS TAKEN UP BY GEAC?
- Crop developer's sweeping claim makes it imperative to understand the relation between release of one seed variety and decline in edible oil import, to assess the very basis of this GMO's application

# Can release of transgenic DMH-11 reduce oil import???

- Oil Import = Oil Consumption - Domestic Oil Production
- Domestic Oil Production = Oil seed Production X extraction %
- Oil seed Production = Other Oil Seeds + Mustard
- Mustard Production = Seed quality + adaptability of variety (Cultivation Area) + Agronomy + Climatic conditions + policy support (export- import policy, Market price etc) [Area planted is a function of these]

NUMEROUS VARIABLES AT PLAY: Releasing high yielder can not be directly and simplistically equated with reduction in Oil Import – here, we present evidence that it has not happened with other hybrids!

# **Rapeseed Mustard contribution in total Oilseeds Production in 2014-15\***

Total Oilseeds Production: 26.67 Million Tonnes

Rapeseed Mustard: 6.31 Million Tonnes

Groundnut: 6.56 Million Tonnes

Soyabean: 10.53 Million Tonnes

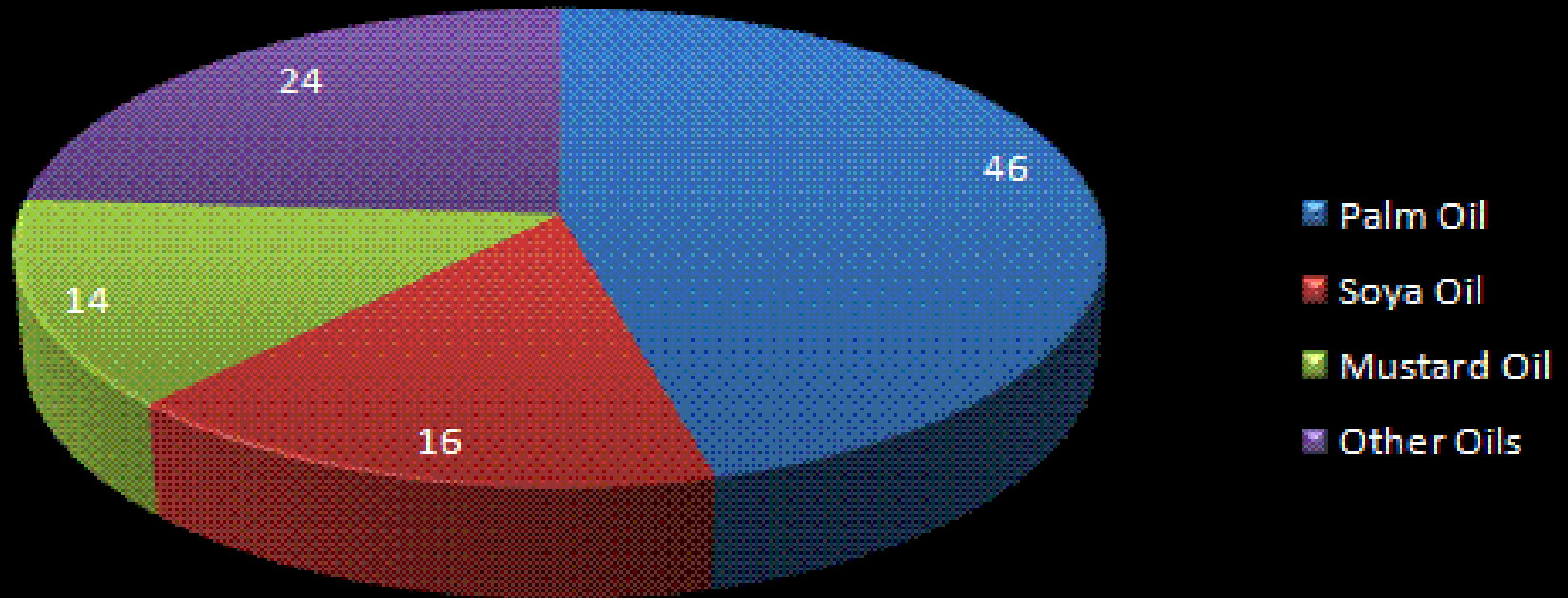
Sunflower: 0.42 Million Tonnes

Remaining: 2.85 Million Tonnes

Rapeseed Mustard share is only: 23.66%

<http://eands.dacnet.nic.in/PDF/Pocket-Book2015.pdf> \*4<sup>th</sup> Advance Estimates

# Edible Oil Consumption in India



[www.iforp.co.nr](http://www.iforp.co.nr)

Mustard Oil Consumption is just 14% of total consumption

For various reasons other oils are more preferred and consumed.

# Area (Mn ha), Production (Mn T) trends of rapeseed-mustard in India

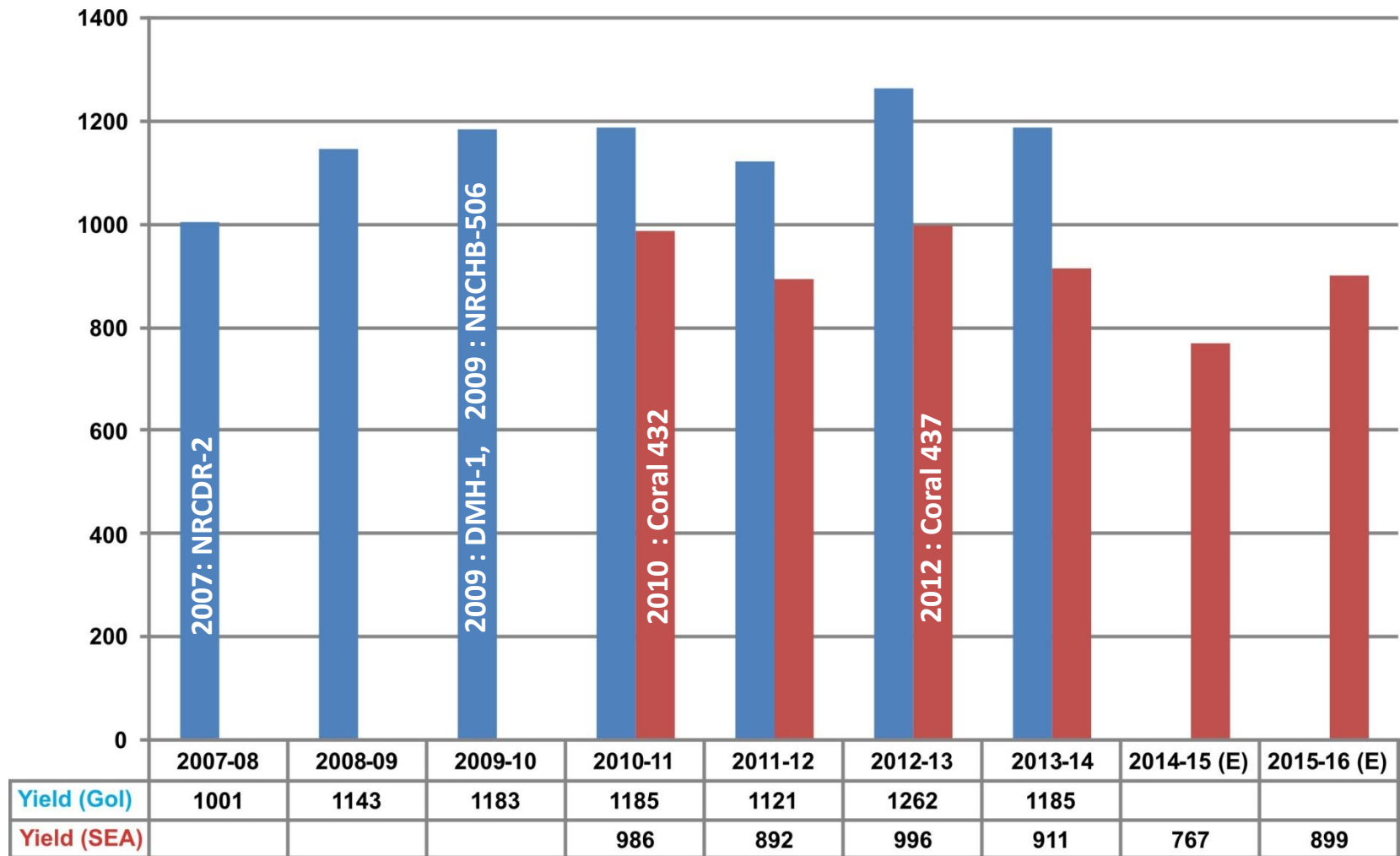


**Does release of Hybrids increase production? How much?**

Ref: 1) [www.icar.org.in/vision%202050%20DRMR%20Rajasthan.pdf](http://www.icar.org.in/vision%202050%20DRMR%20Rajasthan.pdf)

2) AICRP reports 3) Figures in green colour fonts are source from SEA

# Yield (Kg/ha) trends of rapeseed-mustard in India

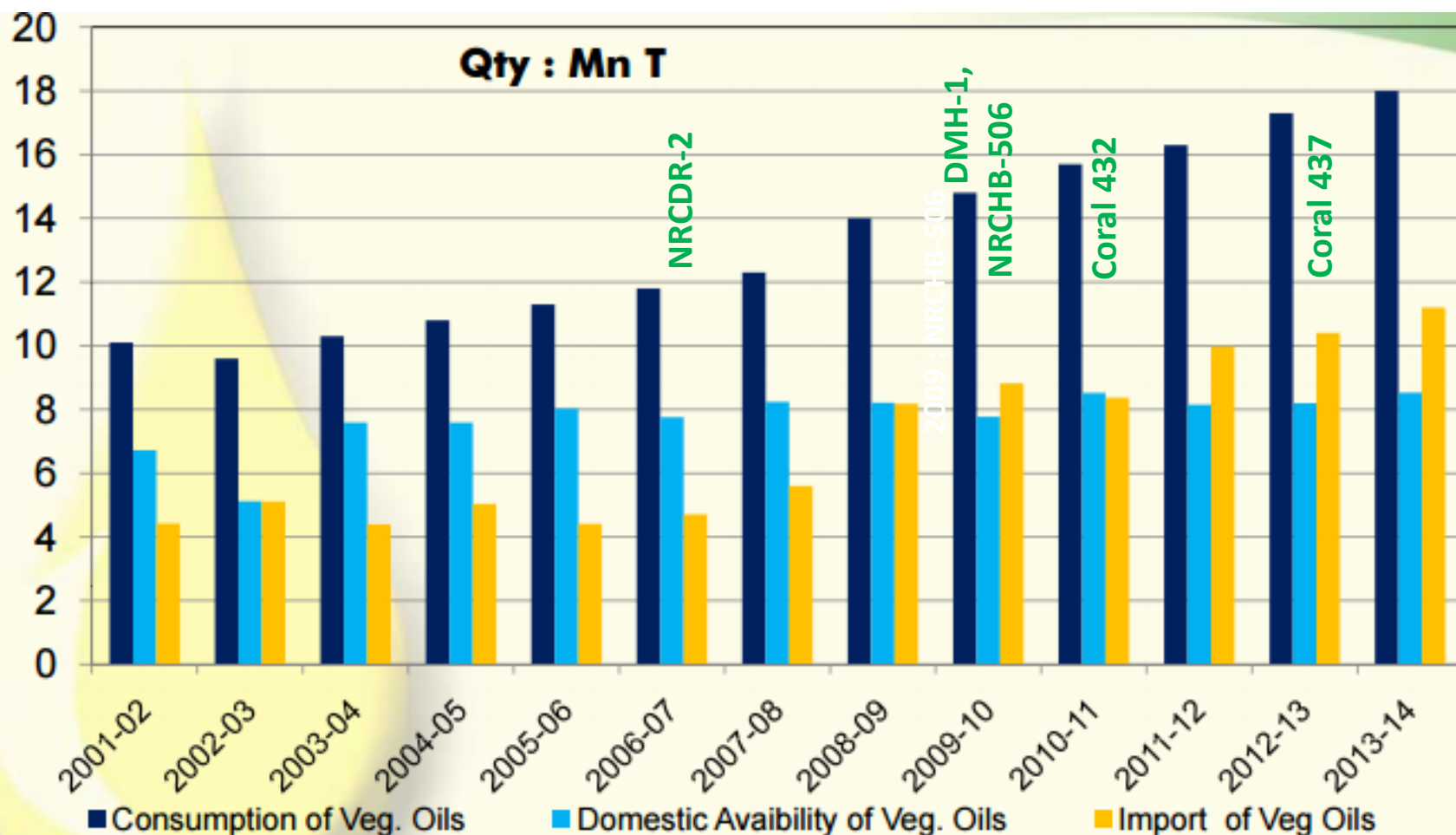


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# Release of Mustard Hybrids vis-a-vis Demand, Availability & Import of Edible Oil in India



**Can we claim that release of Mustard Hybrids will increase domestic edible oil production & reduce import?**

Source : Solvent Extraction Association, Mumbai & AICRP Reports

# No magic bullet

Story of DMH-1 shows that release of one hybrid will not lead to tall claims materialising on Yield and Production improvements in the country, nor decline of Oil Imports!

# Edible Oil Import - A complex Issue

## 1. Consumer Preference and Demand:

86% oil consumed is other than mustard

Cost, taste and cultural issues.

## 2. Domestic Oilseed Production:

76% is other than Mustard

## 3. Cropping Pattern:

86% Area is under other oil seeds cultivation

## 4. Agro-Climatic Conditions:

Weather Effects, Irrigation Facilities created in Mustard growing areas, Biotic stresses.

## 5. Spread and Adoptability:

DMH-1 is not preferred due to shattering habit, weak stem, higher plant height and small seed size. How DMH-11 is different?

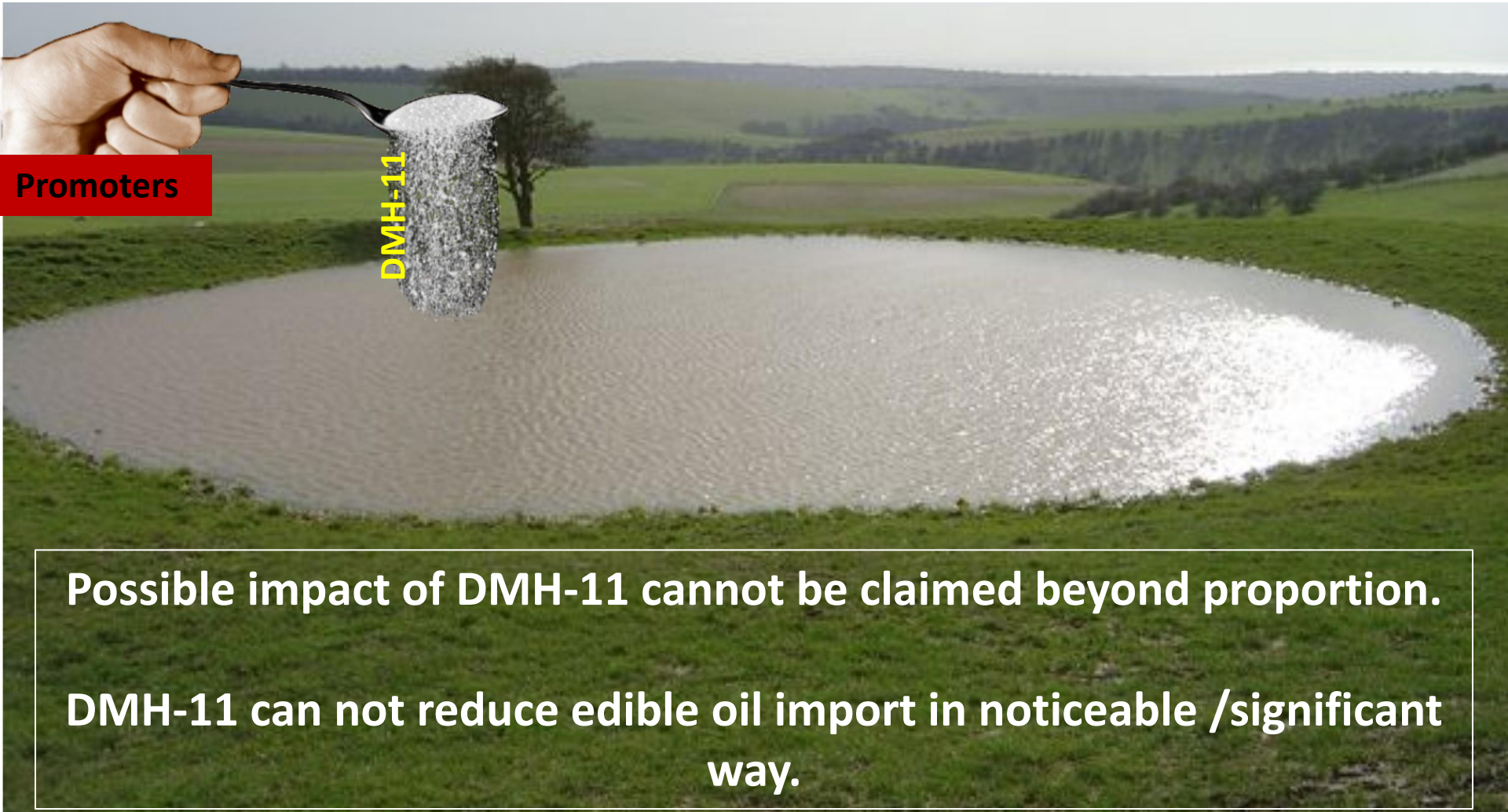
## 6. Policy Support at national and state level:

MSP, Supporting Schemes, Export-Import Policy and Duties

## 7. International Market: Production and Price:

## 8. Competitiveness: Aggressive Marketing of Private Hybrids, eg. DuPont claimed 85000 Acres of cultivation under their hybrids, targeting to 3 million acres by 2017.

# Where is the sense of proportion?



Promoters

DMH-11

Possible impact of DMH-11 cannot be claimed beyond proportion.  
DMH-11 can not reduce edible oil import in noticeable /significant way.

DO THE REGULATORS DO ANY BENEFIT CLAIM ASSESSMENT AT ALL??

**OTHER IMPORTANT CONCERNS**

# HOW WILL YOU UPHOLD OUR RIGHT OF CHOICES?

- For Farmers: IF I DON'T WANT TO GROW GM CROPS – HOW WILL MY CROP & SEED BE PROTECTED FROM GM CONTAMINATION?
  - What about my right to be an Organic Farmer – HOW WILL MY CROP & SEED BE PROTECTED FROM GM CONTAMINATION?
  - For Consumers: How will I know what I am eating? What if I don't want GM mustard? My right to safe food?
  - How will government prevent contamination, ensure segregation and uphold my right to informed choices?
- Labeling Enforcement is non-existent; what about unpackaged foods?

# Honey production & Honey exports

- Honey production and honey industry rests heavily on mustard crop
- Possible impacts from DMH-11:
  - Impact on honeybees (evidence exists)
  - Decline in honey production
  - Contamination and rejection of Indian honey (esp export which is at 35000 MT per year)
- General impacts on biodiversity
- Decline in Mustard production itself, with impacts on honeybees!

# Impact on Organic Farming

- Organic Mustard Growers (why should they be penalised by cross pollination or other contamination)
- Mustard seed cake used by organic farmers as soil amendment will also be questionable

ORGANIC REGULATION IN INDIA PROHIBITS THE USE OF BOTH GM SEED/PLANTING MATERIAL OR INPUTS MADE OF GM & PRODUCTS THEREOF....

WHAT ABOUT ORGANIC ENTERPRISES?

- Organic exports?



# Ayurveda: NO IMPACT ASSESSMENT

- Mustard has a big use in Ayurveda! Various uses as documented in Caraka Saṃhitā, Suśruta Saṃhitā, Bhela Saṃhitā and Kāśyapa Saṃhitā: cleansing of cranial cavity, used in decoction enema, have anti-prurient activity, induce emesis etc. Mustard leaves and seeds used in various formulations!
- DID YOU TAKE UP RISK ASSESSMENT IN THE CONTEXT OF INDIAN SYSTEMS OF MEDICINE – BOTH EFFICACY OF THE MEDICINES AND SAFETY, IN ADDITION TO TRADE RISKS, IF GM IS INTRODUCED??
- AYUSH is not even a part of GEAC
- Such a lack of assessment on ISM was one of the reasons for the Bt brinjal moratorium.

# Impact of GM cold pressed oilcake?

- Cold pressed oil: today it is gaining heavy popularity and recommended by doctors. Such holistic oil is the way to go for health and social reasons.
- Will protein remain intact in such oilcake?
- What is the risk assessment in such cases?

# **ABSENT LIABILITY REGIME**

- Who is liable for any failure? Crop Developer? Funding government agencies like NDDDB and DBT? Regulators like GEAC/RCGM? Individual regulators? UNDER WHAT LAW?
- What is the contingency plan – Even if there is a Management Plan, can you enforce? (could not enforce a single condition around refuge planting in Bt cotton, for example)?

**THIS IS AN IRRESPONSIBLE EXPERIMENT AT THE EXPENSE OF FARMERS AND CONSUMERS**

# **SAFE, CONCRETE, ACTIONABLE PROPOSALS TO IMPROVE OILSEED PRODUCTION**

- Technical : System of Mustard Intensification; Relay sowing on rice fallows
- Policy: Land use planning (increase of area under mustard); import duty increases; remunerative prices and procurement
- Institutional: Better extension systems – plugging the last mile in extension
- Instead of addressing policy and practices will we keep increasing seed production?

# Seed Yield (Kg/ha) Increases with System of Mustard Intensification

State	Organisation/ Institute	Year	No. of farmers	Average Yield	% increase over DMH-11
Bihar	PRADAN/PRAN	2009-10	7	2964	+46.1%
		2010-11	273	3211	+58.2%
		2011-12	1636	3458	+70.4%
Madhya Pradesh	Department of Agriculture: (crop cutting experiments in 8 fields, out of 12 hectares of farmers' fields)	2012-13	8	4693	+131.3%
Rajasthan	DRMR Research	2013-14	-	3560	+75.5%
Non-SMI (for comparison)					
Hybrid	Developer	Year	No. of farmers	Average Yield	% increase over DMH-11
DMH-1 (Survey in farmers' fields by UDSC)	UDSC/DU	2009-10	63	2124	+4.7%
DMH-11	UDSC/DU	4 years	-	2029	-

[http://sri.cals.cornell.edu/aboutsri/othercrops/otherSCI/In\\_SMI/mustard\\_Pradan.pdf](http://sri.cals.cornell.edu/aboutsri/othercrops/otherSCI/In_SMI/mustard_Pradan.pdf)

<https://www.dropbox.com/s/146nyi8lbg32us/Rajesh%20Tripathi%20-%20Powerpoint%20-%20SRI%20in%20Mustard.pdf?dl=0> : "Unprecedented Growth Achieved Using SRI Technique (SRI, SMI & SWI), District Umari (Madhya Pradesh), Year 2012-13 & 2013-14, Department of Farmer Welfare & Agriculture Development, Government of Madhya Pradesh

Directorate of Rapeseed-Mustard Research Annual Report 2013-14: [http://www.drmmr.res.in/publication/DRMR\\_ar\\_%202013-14.pdf](http://www.drmmr.res.in/publication/DRMR_ar_%202013-14.pdf)

Performance of DMH-1 in farmers' fields during 2009-10 – survey results from 63 farmers. Presentation by Dr Deepak Pental:

<http://www.slideshare.net/GCProgramme/keynote-icrisat-pental>

# Closer look at Oil Consumption..

- Is our per capita consumption healthy?
- Why not address the low consumption through PDS and not address the issue as general effort to address growing edible oil demand?

# On other important matters..

- TEC report, PSC on Agriculture report, numerous scientific studies- there are so many clear warnings against GMOs and Herbicide Tolerant Crops in particular
- Finally, GEAC should remember it is an Appraisal and not an **Approval committee**! Act like a regulator and not the promoter. Main mandate is to “protect nature, environment & health from risks of Gene Technology” – WE ARE YET TO SEE THIS IN ACTION!

# We will come back..

- Consumers will be concerned about health safety of transgenic mustard DMH-11.
- Unfortunately no health safety information available in public domain.
- We will come back on health risks related issues, once the bio safety dossier is put in the public domain.